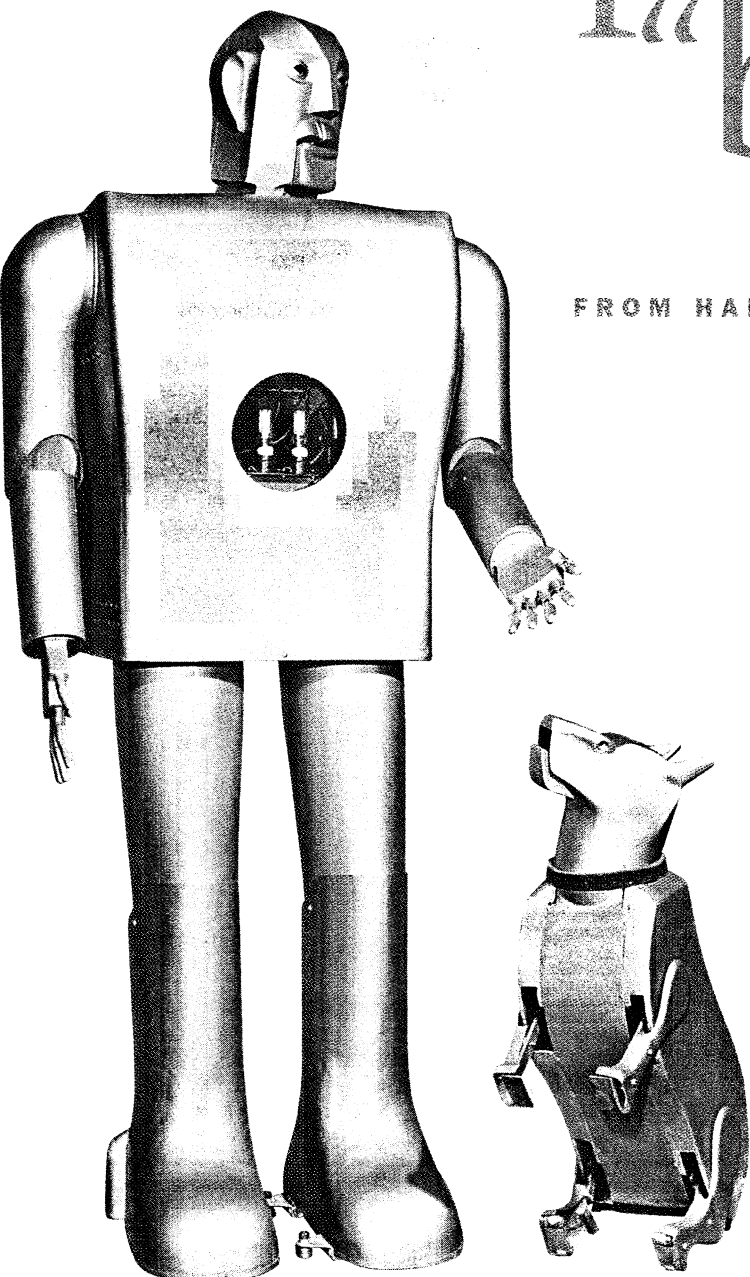


computer "brains"

FROM HAL TO SMART STEREOS



“O pen the pod bay doors,” said astronaut Dave Bowman to HAL, the genius computer featured in the film classic, *2001: A Space Odyssey*. “I’m sorry, Dave, I’m afraid I can’t do that,” came the chilling response. In 1968, HAL reaffirmed our opinion that the computer of the future was to be untrustworthy and evil.

Many of us have grown up with the concept of “artificial intelligence” (AI) firmly implanted in our brains. HAL was but the culmination of much of the early hype surrounding this field of computer endeavour. We were led to believe that it was inevitable that, one day, computers would be smarter than we are.

YESTERDAY

When computers first entered public consciousness in the late 1940s and early 1950s, they were explained to the general public in the simplest of terms. Heralded as a marvelous new invention, news coverage focused on the fact that computers were nothing less than an electronic brain. In fact, the first popular book about computers, released in 1949, was entitled *Giant Brains, or Machines That Think*. This comparison to human intelligence was rampant in the popular media of the time, with headlines that screamed of the potential: "100 ton

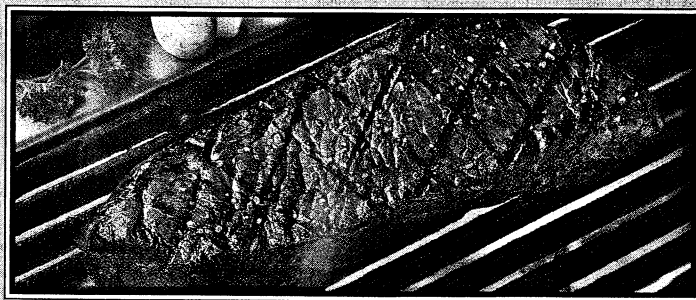
brain at M.I.T.," "Want to buy a brain?," "Whirlwind One: Speediest electro-brain!"

Implicit at the time was the prediction that computers would one day be able to undertake that most basic of human capabilities — they would be able to think and interact on a level that met, and even exceeded, that of the human being. Such fancy was based on the explosion of research in the 1950s and 1960s into what quickly came to be known as AI. Massive expenditures, particularly by the U.S. military establishment, were devoted to these so-called thinking machines.

There was an intense focus on computers that could play chess and checkers, as if that epitomized the extent of human intelligence. We were reassured every time a chess grandmaster humbled the computer, and along with it the scientists who seemed intent on displacing us.

Yet even so, we remained worried about the future. Troublesome headlines ("Will machines replace the human brain?") left us with an uneasy sense that things might be going too far. The movie *2001* took all our fears and set them dancing on the screen. HAL was truly an evil genius, a

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silicon-marvel that could not only talk, think, and act like a human, but could commit the ultimate act of a twisted human mind – murder.

TODAY

Perhaps one of the most memorable scenes in *2001* occurs when Dave Bowman unplugs HAL's memory modules, causing this silicon demi-god to lose his mind. Slowly, as his intelligence drains away, he starts to pull bits of memory from his past. Finally, he manages to offer up his definitive statement of his birth. "Good afternoon, gentlemen. I am a HAL 9000 computer. I became operational at the H.A.L. plant in Urbana, Illinois, on the 12th of January 1992."

Computer scientists around the world celebrated that date in 1992 by debating whether a computer with the intelligence of HAL would ever come to exist. The general conclusion seemed to be, probably not. While research quietly continues into such exotic areas as expert systems, cognitive reasoning and neural networks, much of the hype found with the early days of the electro-brains has all but disappeared. What remains is a plodding, careful and thoughtful march into the future.

It is probably best that this is so. From the perspective of an unbelieving public, billions of dollars of government and corporate research have resulted in not much more than a computer that can finally win a chess game. The world was captivated, to a degree, when in 1997 a computer named Deep Blue finally managed to beat chess grandmaster Gary Kasparov. A collective yawn followed, with most people convinced that while these devices might be able to play a good game of chess, they'd never be as powerful (or as threatening) as HAL.

Of course, humorist Dave Barry had a different perspective at the time, generally believing that any device with a computer chip is smarter than your average human. Upon hearing of Deep Blue's victory, he wrote that "the supermarket computer is WAY more intelligent than humans, because it knows how to add, a skill that most humans have totally forgotten by the time they get to the Senior Prom."

TOMORROW

Will computers ever truly think? Might we ever get to meet a real HAL 9000? The physicist Niehls Bohr once observed, perhaps with the ultimate in humility, that "prediction is very difficult,

especially when it involves the future."

While scientists downplay the concept of a system like HAL, they do speak of the fact that the devices that will encompass our daily lives in the future will be quite smart. Your stereo will contain massive degrees of computer intelligence. It will analyze what you do, and will learn that on Sunday mornings you prefer soft classical music, while on Friday night you like to drag out those old Rolling Stones tunes. Your television will notice your propensity to watch *M*A*S*H* reruns every Tuesday night and will offer to tape those shows for your digital archives. Your automobile, full of computer silicon, will remember the route you take to the grocery store and will offer to guide you there automatically.

No doubt computer intelligence will emerge, but not in the HAL-like form of Hollywood's dark fantasies. Instead — less dramatically but more usefully — AI will enhance the everyday appliances that fill our lives, making them more responsive to our individual needs and preferences. ■

Jim Carroll, C.A., expresses his continuing study of computer and Internet issues through corporate speaking engagements, a weekly column in the *Globe and Mail*, and numerous books. E-mail your comments to: jcarroll@jimcarroll.com.